

**REMARKS**

In the present Amendment, claim 1 has been amended to specifically recite the dimensions of the “nanometric” and “micrometric” structures. This amendment is supported by the specification, for example, page 5, 1<sup>st</sup> paragraph.

Claim 10 has been amended to recite that the dimension of the tip. This amendment is supported by the specification, for example, page 9, lines 24-25.

The claims have been amended for clarity and to improve their form.

Entry of the Amendment is respectfully requested. Upon entry of the Amendment, claims 1-21 will be all the claims pending in the application.

**I. Response to Rejection Under 35 U.S.C. § 112, Second Paragraph**

In Paragraph No. 2 of the Office Action, claims 1-15 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite.

Applicants respectfully submit that the present claims are not indefinite.

In the Amendment, Applicants have amended the claims for clarity and to improve their form.

Specifically, claim 1 has been amended: (i) to specifically recite the dimensions of “nanometric” and “micrometric” structures; (ii) to replace “arranged according to definite geometries” with “having defined geometries;” (iii) to replace “it” in line 3 with “the method;” (iv) to replace “a photopolymeric or UV mixture” with “a photopolymerizable mixture;” (v) to

delete the words “respective” in line 6 and “the” in line 7; (vi) to recite “variation of the index of refraction of the layer;” and (vii) to replace “capable of producing” with “to produce.”

Claim 3 has been amended to recite an oxygen-free environment.

Claim 4 has been amended to replace “must be made” with “are to be formed.”

Claim 6 has been amended to delete the word “the” in line 2.

Claims 7 and 13 have been amended to clarify the meanings.

Claims 7-9 have been amended to delete the word “envisaged.”

Claim 8 has been amended to delete “(M)” in line 2.

Claim 9 has been amended to delete the phrase “positionable according to a number of axes adjacent to the layer of mixture.”

Claim 14 has been amended to replace “in which the is of” with “wherein the.”

Further, Applicants respectfully submit that the “projections” recited in claim 1 inherently have a height of more than 0 and thus are not optional, contrary to the Examiner’s assertion. Moreover, the dimensions of these projections are also defined in the claim.

Still further, Applicants respectfully submit that the terms “binary mask” and “half-tone mask” recited in claim 5, “nanoparticle” recited in claim 10, and “ferrofluids” recited in claim 15 are well-known in the art and the meanings thereof are understood. For example, the terms “binary mask” and “half-tone mask” are described in *"Introduction to Fourier Optics"* by J.W. Goodman, McGraw-Hill, (1968) and *"Fabrication of High-Efficiency Elements for Diffractive and Integrated Optics for Photoreastered Technology"* by A.G. Poleschchuk, Proceeding at the 5<sup>th</sup> National Conference on Optics and Laser Engineering, 7-8, (1989). Moreover, Wikipedia

on-line encyclopedia defines a “nanoparticle” as a microscopic particle whose size is measured in nanometers and defines “nanometer scale” to mean usually 0.1 to 100 nm. In addition, magnetic iron oxide, i.e.,  $\text{Fe}_3\text{O}_4$ , nanoparticle dispersions is commercially known as “ferrofluid.” See, e.g., S. Odenbach, *“Ferrofluids - Magnetisable Liquids and Their Application in Density Separation,”* Magnetic and Electric Separation, 9 (1998).

In view of the foregoing, Applicants respectfully submit that the present claims are in full compliance with the § 112 requirements and thus the rejection should be withdrawn.

## **II. Response to Objection to Declaration**

In Paragraph No. 3 of the Office Action, the Declaration is objected to as being defective.

In response, Applicants submit herewith a Supplemental Declaration in compliance with 37 C.F.R. § 1.63. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the objection to the Declaration.

## **III. Response to Rejections Under 35 U.S.C. § 102**

a. In Paragraph No. 5 of the Office Action, claims 1-3, 11 and 15 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Hsieh et al (U.S. Pat. No. 6,818,155 B2).

Applicants respectfully submit that the present claims are not anticipated by Hsieh et al for at least the following reasons.

Hsieh et al discloses a composition of a polymer and magnetic material particles, which may be subjected to a magnetic field and subsequently cured (Abstract). Hsieh et al further

describes that the magnetic material particles may be small in size, such as dimensions of 1  $\mu\text{m}$  by 2  $\mu\text{m}$  by 10  $\mu\text{m}$  (col. 3, lines 12-16).

In contrast, the present claims recite a polymerizable mixture containing “nanoparticles.” As set forth above, “nanoparticles” are understood by those skilled in the art to have a diameter of 0.1 to 100 nm. Therefore, the composition described in Hsieh et al is different from the mixture recited in the present claims.

Moreover, Hsieh et al is not related to formation of surface projections of nanometric or micrometric dimensions, as recited in the present claims.

In view of the foregoing, Applicants respectfully submit that Hsieh et al does not anticipate the present claims and thus the rejection should be withdrawn.

**b.** In Paragraph No. 6 of the Office Action, claims 1, 3, 11 and 14-15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Martin et al (U.S. Pat. No. 6,391,393 B1).

Applicants respectfully submit that the present claims are not anticipated by Martin et al for at least the following reasons.

Martin et al discloses a method of forming a dual-level memory material formed from a dispersion of ferromagnetic particles in a polymerizable liquid medium, which is selectively subjected to a magnetic or electrical field and subsequently cured (Abstract; col. 1, lines 39-63).

However, Martin et al is not related to formation of surface projections of nanometric or micrometric dimensions, as recited in the present claims.

In view of the above, Applicants respectfully submit that Martin et al does not anticipate the present claims and thus the rejection should be withdrawn.

c. In Paragraph No. 10 of the Office Action, claims 1, 3, 11 and 14-15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Kostenmaki et al (U.S. Pat. No. 5,522,962).

Applicants respectfully submit that the present claims are not anticipated by Kostenmaki et al for at least the following reasons.

Kostenmaki et al discloses a method of forming electrically conductive sheet materials comprising the steps of providing a carrier web having a plurality of recesses in a first face, providing ferromagnetic particles on the recesses, providing a binder layer over the first face, and applying a magnetic field sufficient to align the ferromagnetic particles into continuous magnetic columns (col. 2, lines 58-65). As described in Example 1, one face of a polymer film was first embossed to have recesses and then a magnetic particle-containing slurry were filled in the recesses of the embossed film, overcoated and radiated to form columns (col. 9, lines 30-65). That is, in Kostenmaki et al, the magnetic particles are *localized* in the recesses before forming the columns.

In contrast, in the present invention, the surface projections are formed from exposing a *layer* of a mixture containing nanoparticles to UV radiation. For this reason, the method described in Kostenmaki et al is different from the presently claimed invention.

In view of the foregoing, Applicants respectfully submit that Kostenmaki et al does not anticipate the present claims and thus the rejection should be withdrawn.

**IV. Response to Rejections Under 35 U.S.C. § 103**

a. In Paragraph No. 7 of the Office Action, claims 2 and 8-10 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Martin et al, in view of Hsieh et al.

Applicants respectfully submit that the present claims are patentable over Martin et al in view of Hsieh et al for the same reasons as set forth above in Sections III.a and b. In particular, neither Martin et al nor Hsieh et al describe formation of surface projections of nanometric or micrometric dimensions, as recited in the present claims. Therefore, even if there might be motivation to combine the cited references, the combination still would not result in the present invention. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection.

b. In paragraph No. 8 of the Office Action, claims 4-7 and 12-13 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Martin et al, in view of Hsieh et al, and further in view of McArdle et al (U.S. Pat. No. 6,180,226 B1).

Applicants respectfully submit that the present claims are patentable over the cited references for the same reasons as set forth above in Sections III.a and b. In particular, neither Martin et al nor Hsieh et al describe formation of surface projections of nanometric or micrometric dimensions, as recited in the present claims. Therefore, even if there might be

motivation to combine the cited references, in the manner as suggested by the Examiner, the combination still would not result in the present invention. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection.

**V. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

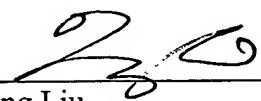
Respectfully submitted,

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

  
Fang Liu  
Registration No. 51,283

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